



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/977,429	10/15/2001	Lars Aksel Thingelstad	0279.3015.001	3257
23399	7590	11/18/2005	EXAMINER	
REISING, ETHINGTON, BARNES, KISSELLE, P.C.			CHORBAJI, MONZER R	
P O BOX 4390			ART UNIT	
TROY, MI 48099-4390			PAPER NUMBER	

1744

DATE MAILED: 11/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/977,429

Applicant(s)

THINGELSTAD, LARS AKSEL

Examiner

MONZER R. CHORBAJI

Art Unit

1744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08/22/2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 August 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This non-final action is in response to the amendment received on 08/22/2005

Claim Objections

1. Claims 15 and 36 are objected to because of the following informalities:

In claim 15, line 8; applicant recites the following phrase "commences closing said other". The word "end" needs to be added next to "other".

In claim 36, line 2; applicant recites the following phrase "causing a mandrel container said device". The word "container" needs to be replaced with "containing". Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Art Unit: 1744

4. Claims 1, 4, 6-7, 10-11, 13 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holbert (U.S.P.N. 5,730,934) in view of Tuckner et al (U.S.P.N. 5,350,568) in view of Kodera (U.S.P.N. 4,396,582).

With respect to claims 1 and 13, the Holbert reference discloses a method and an apparatus for sterilizing the interior surfaces of a partially completed container (col.1, lines 5-8) by extending an ultraviolet lamp inside the container (figure 6:70, 20 and col.8, lines 45-49). In addition, the Holbert reference teaches that hydrogen peroxide can be applied to the interior surfaces of containers (col.3, lines 28-32). However, with respect to claims 1 and 13, the Holbert reference fails to teach extending a sterilant source inside a container and simultaneously applying a sterilant with ultraviolet radiation to the interior surfaces of the container. The Tuckner reference teaches extending within a partially completed container a device for spraying the interior surfaces of the container with hydrogen peroxide (figures 3(a)-3(c) and col.4, lines 61-67). The Tuckner reference further teaches that ultraviolet irradiation can be applied at a later step (col.10, lines 55-60). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method and apparatus of the Holbert reference by adding a hydrogen peroxide sterilization step as taught by the Tuckner reference since the application of ultraviolet radiation and hydrogen peroxide results in a greater sterilizing effects (col.10, lines 56-58).

With respect to claims 1 and 13, the Tuckner reference fails to teach the simultaneous application of both ultraviolet radiation and hydrogen peroxide to

Art Unit: 1744

the interior surfaces of a partially completed container. The Koder reference teaches applying ultraviolet radiation and liquid sterilant simultaneously to the surfaces of a partially completed container (col.1, lines 60-62, col.3, lines 19-21 and col.7, lines 30-41). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method and apparatus of the Holbert reference by simultaneously applying both ultraviolet light and hydrogen peroxide to the interior surfaces of partially completed containers as taught by the Koder reference since simultaneous treatment leads to satisfactory sterilization results (col.7, lines 39-41).

With respect to claims 4, 6, 11 and 17, the Holbert reference teaches the following: very short distance between the rod-shaped ultraviolet lamp and the interior surface of the partially completed container (figure 3:20, 32 and figure 7:20 and 70) where radiation is emitted from an outer end of the device perpendicularly to a longitudinal axis of the lamp (figure 7:20, 70 and unlabeled arrows where the longitudinal axis of the lamp represents the vertical up and down motion of the lamp), radiation is emitted 360 degrees around the longitudinal axis (unlabeled arrows in figure 7 or 46 in figure 3), partially completed container is in the form of a folded sleeve closed at one end and open at its other end (figure 7:70) and folding and sealing the other end to provide end closure (col.9, lines 14-16).

With respect to claim 7, the Holbert reference teaches a container opened at both opposite ends (col.6, lines 30-31 and figures 2-5) by extending an ultraviolet lamp inside the container (figure 6:70, 20 and col.8, lines 45-49). In

Art Unit: 1744

addition, the interior surfaces of the partially completed container is irradiated while simultaneously the material passes along the lamp (figure 2:38 and 20) and that hydrogen peroxide can be applied to the interior surfaces of containers (col.3, lines 28-32). However, with respect to claim 7, the Holbert reference fails to teach extending a sterilant source inside a container and simultaneously applying a sterilant with ultraviolet radiation to the interior surfaces of the container. The Tuckner reference teaches extending within a partially completed container a device for spraying the interior surfaces of the container such that while extending the sprayer within the container (col.9, lines 56-58), applying hydrogen peroxide (figures 3(a)-3(c) and col.4, lines 61-67). The Tuckner reference further teaches that ultraviolet irradiation can be applied at a later step (col.10, lines 55-60). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method and apparatus of the Holbert reference by adding a hydrogen peroxide sterilization step as taught by the Tuckner reference since the application of ultraviolet radiation and hydrogen peroxide results in a greater sterilizing effects (col.10, lines 56-58).

With respect to claim 7, the Tuckner reference fails to teach the simultaneous application of both ultraviolet radiation and hydrogen peroxide to the interior surfaces of a partially completed container. The Koder reference teaches applying ultraviolet radiation and liquid sterilant simultaneously to the surfaces of a partially completed container (col.1, lines 60-62, col.3, lines 19-21 and col.7, lines 30-41). Thus, it would have been obvious to one having ordinary

Art Unit: 1744

skill in the art at the time the invention was made to modify the method and apparatus of the Holbert reference by simultaneously applying both ultraviolet light and hydrogen peroxide to the interior surfaces of partially completed containers as taught by the Koderia reference since simultaneous treatment leads to satisfactory sterilization results (col.7, lines 39-41).

With respect to claim 10, the Holbert reference discloses folding and sealing the other end of the partially completed container to provide end closures (col.9, lines 14-16).

5. Claims 2-3, 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holbert (U.S.P.N. 5,730,934) in view of Tuckner et al (U.S.P.N. 5,350,568) and Koderia (U.S.P.N. 4,396,582) as applied to claims 1 and 13 and further in view of Swain et al (U.S.P.N. 5,419,058).

With respect to claims 2-3, 14 and 16, the Holbert reference, the Tuckner reference and the Koderia reference all fail to teach moving the partially completed container with respect to the radiation source or the sterilant source; however, the Swain reference, which is in the art of treating substrates, teaches the concept of moving the substrate, i.e., moving the substrate upward and downward past the spray nozzle (col.6, lines 13-15). The combination of the above references result in the simultaneous transverse motion to the axis of the partially completed container of both the partially completed container and radiation/sterilant source while emission of radiation (figure 2:38 and 20) and application of hydrogen peroxide is performed (col.9, lines 56-58). In addition, all the Holbert reference, the Tuckner reference and the Swain reference all have

Art Unit: 1744

drive arrangement means for moving radiation source (col.8, lines 46-47) or the sterilant source (col.4, lines 65-67) or the substrate (col.6, lines 18-26). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method and apparatus of the Holbert reference by including a carton displacement means as taught by the Swain reference in order to insure that the entire carton is treated (col.6, lines 28-31).

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holbert (U.S.P.N. 5,730,934) in view of Tuckner et al (U.S.P.N. 5,350,568) and Kodera (U.S.P.N. 4,396,582) as applied to claim 1 and further in view of Leshik et al (U.S.P.N. 4,931,302).

With respect to claim 5, the Holbert reference, the Tuckner reference and the Kodera reference all fail to teach that the container is a cup or beaker and applying a lid to the container; however, the Leshik reference, which is in the art of UV sterilization of cup-shaped plastic containers, teaches that such containers have flexible lids (col.4, lines 39-49). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of the Holbert reference by including cup-shaped plastic containers with flexible lids as taught by the Leshik reference since such cups are used in the aseptic filling industry (col.4, lines 39-42).

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holbert (U.S.P.N. 5,730,934) in view of Tuckner et al (U.S.P.N. 5,350,568) and Kodera (U.S.P.N. 4,396,582) as applied to claim 7 and further in view of Palaniappan et al (U.S.P.N. 6,056,918).

With respect to claim 8, the Holbert reference, the Tuckner reference and the Koder reference all fail to explicitly teach moving the container at a constant speed. The specification on page 9, lines 1-4, teaches that a uniform layer of hydrogen peroxide solution is applied as the result of a constant speed motion between the container and the device. The Palaniappan reference teaches forming a uniform coverage layer of hydrogen peroxide (col.8, lines 48-51) on the surfaces of cartons. This result is achieved through a constant speed motion as taught by the specification. The Holbert reference teaches that hydrogen peroxide can be applied to the interior surfaces of containers (col.3, lines 28-32). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of the Holbert reference by including a constant speed motion between the sterilant source and the partially completed since such a modification leads to an improvement in the sterilization capability of the system as taught by the Palaniappan reference (col.8, lines 52-54).

8. Claims 9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holbert (U.S.P.N. 5,730,934) in view of Tuckner et al (U.S.P.N. 5,350,568) and Koder (U.S.P.N. 4,396,582) as applied to claims 7 and 13 and further in view of Rodocker (U.S.P.N. 4,590,740).

With respect to claims 9 and 15, the Holbert reference discloses a mandrel (figure 7:20) that extends into the top open end of the partially completed container (figure 7:70) by driving arrangement means. The top of the sterilized container is sealed at a closing arrangement disposed at a location

Art Unit: 1744

along a transverse movement of the mandrel (figure 7:70 and the unlabeled subsequent filling and closing steps) after sterilization is achieved. Further, the Holbert reference teaches forming containers from packaging material (col.6, lines 26-40) that result in a tubular container opened at both ends. Mandrel is conventionally defined as cylindrical axle inserted into a hole in a piece of work to support it during treatment. The mandrel (figure 7:20) of the Holbert reference is capable of supporting the partially completed container by being inserted within it. The Holbert reference, the Tuckner reference and the Kodera reference all fail to teach that while the container remains on the mandrel, the container other end is closed. The Rodocker reference teaches a partially completed container open at both ends (figure 1:40) and subsequently closing the other end of the container (figure 1:B or C or D) while the container is remaining on the mandrel. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of the Holbert reference by including a mandrel assembly as taught by the Rodocker reference since such an assembly provides an improved means by sterilizing the interior surfaces of carton blanks prior to bottom formation step thereby substantially increasing the sterilizing time allotted to each carton (col.4, lines 10-16).

9. Claims 12 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holbert (U.S.P.N. 5,730,934) in view of Tuckner et al (U.S.P.N. 5,350,568) and Kodera (U.S.P.N. 4,396,582) as applied to claims 11 and 17 and further in view of Palaniappan et al (U.S.P.N. 6,120,730).

With respect to claims 12 and 18, the Tuckner reference teaches emitting hydrogen peroxide from the outer end of the device at 360 degrees around the axis of the container (figure 2:28 and the unlabeled hydrogen peroxide dispensing lines); however, the Holbert reference, the Tuckner reference and the Koderia reference all fail to teach emitting a sterilant perpendicular to the axis of the container. The Palaniappan reference teaches emitting hydrogen peroxide substantially perpendicular to the axis of the container (figure 5:63 and 260). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of the Holbert reference by substituting the Holbert sprayer for the Palaniappan sprayer in order to be able to widely disperse the sterilant within the container as taught by the Palaniappan reference (col.6, lines 62-64).

10. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holbert (U.S.P.N. 5,730,934) in view of Tuckner et al (U.S.P.N. 5,350,568) and Koderia (U.S.P.N. 4,396,582) as applied to claim 17 and further in view of Leshik et al (U.S.P.N. 4,931,302).

With respect to claim 19, the Holbert reference discloses a mandrel (figure 6:20) that extends into the top open end of the partially completed container (figure 7:70) by driving arrangement means. The top of the sterilized container is sealed at a closing arrangement disposed at a location along a transverse movement of the mandrel (figure 7:70 and the unlabeled subsequent filling and closing steps) after sterilization is achieved. Further, the Holbert reference teaches forming containers from packaging material (col.6, lines 26-40) that

Art Unit: 1744

result in a tubular container opened at both ends. Mandrel is conventionally defined as cylindrical axle inserted into a hole in a piece of work to support it during treatment. The mandrel (figure 7:20) of the Holbert reference is capable of supporting the partially completed container by being inserted within it. The Holbert reference, the Tuckner reference and the Koderia reference all fail to teach positioning a mandrel cap at an outer end of the rod-shaped source and bottom sealing the partially completed container; however, the Leshik reference, which is in the art of UV sterilization of cup-shaped plastic containers, teaches that such containers have flexible lids (col.4, lines 39-49). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of the Holbert reference by including cup-shaped plastic containers with a sealing lids as taught by the Leshik reference since such cups are used in the aseptic filling industry (col.4, lines 39-42).

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claim 20 is rejected under 35 U.S.C. 102(b) as being anticipated by Tuckner et al (U.S.P.N. 5,350,568).

With respect to claim 20, the Tuckner reference teaches sterilizing a partially completed container by inserting while spraying hydrogen peroxide

Art Unit: 1744

through one of the open ends of the container a mandrel (figure 3(a): 62 and 34) that includes a sprayer for spraying the interior surfaces of the container (figure 3(a) through 3(c)) such that the container is open at opposite ends (col.4, lines 13-19) and a drive arrangement (col.5, lines 30-34) for making the mandrel to extend into the container from one of the open ends (figure 3(c)).

13. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tuckner et al (U.S.P.N. 5,350,568) as applied to claim 20 and further in view of Palaniappan et al (U.S.P.N. 6,056,918).

With respect to claim 21, the Tuckner reference teaches continuously apply hydrogen peroxide to containers (col.9, lines 56-58) but fails to explicitly teach moving the container at a constant speed. The specification on page 9, lines 1-4, teaches that a uniform layer of hydrogen peroxide solution is applied as the result of a constant speed motion between the container and the device. The Palaniappan reference teaches forming a uniform coverage layer of hydrogen peroxide (col.8, lines 48-51) on the surfaces of cartons. This result is achieved through a constant speed motion as taught by the specification. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of the Tuckner reference by including a constant speed motion between the sterilant source and the partially completed container since such a modification leads to an improvement in the sterilization capability of the system as taught by the Palaniappan reference (col.8, lines 52-54).

14. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tuckner et al (U.S.P.N. 5,350,568) as applied to claim 20 and further in view of

Art Unit: 1744

Rodocker (U.S.P.N. 4,590,740).

With respect to claim 22, the Tuckner reference inserts a mandrel (figure 3(a): 32 and 62) in the one opening of the partially completed container. The Tuckner reference further teaches the cartons are formed from blanks with two open ends (col.4, lines 14-17). Mandrel is conventionally defined as cylindrical axle inserted into a hole in a piece of work to support it during treatment. The mandrel (figure 3(a): 32 and 62) of the Tuckner reference is capable of supporting the partially completed container by being inserted within it. However, the Tuckner reference fails to teach closing the other end of the container while it remains on the mandrel. The Rodocker reference teaches sealing the other end while the container remains on the mandrel (figure 1:24, 26 and col.2, lines 36-39). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of the Tuckner reference by including a mandrel assembly as taught by the Rodocker reference since such an assembly provides an improved means by sterilizing the interior surfaces of carton blanks prior to bottom formation step thereby substantially increasing the sterilizing time allotted to each carton (col.4, lines 10-16).

15. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tuckner et al (U.S.P.N. 5,350,568) as applied to claim 20 and further in view of Swain et al (U.S.P.N. 5,419,058).

With respect to claim 31, the Tuckner references teaches moving the spraying device within the container and continuously apply hydrogen peroxide to containers (col.9, lines 56-58) but fails to teach simultaneously advancing the

Art Unit: 1744

container and the device; however, the Swain reference, which is in the art of treating substrates, teaches the concept of moving the substrate, i.e., moving the substrate upward and downward past the spray nozzle (col.6, lines 13-15). The combination of the above references result in the simultaneous transverse motion to the axis of the partially completed container. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of the Tuckner reference by including a carton displacement means as taught by the Swain reference in order to insure that the entire carton is treated (col.6, lines 28-31).

16. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tuckner et al (U.S.P.N. 5,350,568) as applied to claim 20 and further in view of Palaniappan et al (U.S.P.N. 6,120,730).

With respect to claim 32, the Tuckner reference teaches emitting hydrogen peroxide from the outer end of the device at 360 degrees around the axis of the container (figure 2:28 and the unlabeled hydrogen peroxide dispensing lines); however, the Tuckner reference fails to teach emitting a sterilant perpendicular to the axis of the container. The Palaniappan reference teaches emitting hydrogen peroxide substantially perpendicular to the axis of the container (figure 5:63 and 260). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of the Holbert reference by substituting the Holbert sprayer for the Palaniappan sprayer in order to be able to widely disperse the sterilant within the container as taught by the Palaniappan reference (col.6, lines 62-64).

Art Unit: 1744

17. Claims 23-24, 33-35 and 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holbert (U.S.P.N. 5,730,934) in view of Swain et al (U.S.P.N. 5,419,058).

With respect to claims 23-24, the Holbert reference teaches inserting UV lamp into a partially completed container, but fails to teach moving the partially completed container with respect to the radiation source; however, the Swain reference, which is in the art of treating substrates, teaches the concept of moving the substrate, i.e., moving the substrate upward and downward past the spray nozzle (col.6, lines 13-15) with a drive mechanism for displacing the container (col.6, lines 18-25). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method and apparatus of the Holbert reference by including a carton displacement means as taught by the Swain reference in order to insure that the entire carton is treated (col.6, lines 28-31).

With respect to claims 33 and 39, the Holbert reference teaches a very short distance between the rod-shaped ultraviolet lamp and the interior surface of the partially completed container (figure 3:20, 32 and figure 7:20 and 70) where radiation is emitted from an outer end of the device perpendicularly to a longitudinal axis of the lamp (figure 7:20, 70 and unlabeled arrows where the longitudinal axis of the lamp represents the vertical up and down motion of the lamp) throughout 360 degrees.

With respect to claims 34-35, the Holbert reference teaches that the container is a partially completed container in the form of a folded sleeve open at

Art Unit: 1744

both ends (col.6, lines 26-42) such that while displacing is being performed, emitting is being performed and displacing is at constant speed while emitting is being performed (the specification on page 8, numbered lines 25-27 and page 9, numbered lines 1-3 teaches that constant speed would results in a uniform sterilization, which the Holbert reference teaches in col.3, lines 8-9. Obviously, the Holbert reference is intrinsically moving the device at a constant speed). However, the Holbert reference fails to teach moving the partially completed container with respect to the radiation source. The Swain reference teaches the concept of moving the substrate, i.e., moving the substrate upward and downward past the spray nozzle (col.6, lines 13-15) with a drive mechanism for displacing the container (col.6, lines 18-25). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of the Holbert reference by including a carton displacement means as taught by the Swain reference in order to insure that the entire carton is treated (col.6, lines 28-31).

With respect to claim 37, the Holbert reference teaches inserting UV lamp into a partially completed container. Further, the Holbert reference teaches forming containers from packaging material (col.6, lines 26-40) that result in a tubular container opened at both ends and a closing arrangement disposed at a location along a path of transverse movement of the mandrel (figure 6:70 and the unlabeled closing means in a transverse relation to the mandrel; however, the Holbert reference fails to teach moving the partially completed container with respect to the radiation source. The Swain reference teaches the concept of

Art Unit: 1744

moving the substrate, i.e., moving the substrate upward and downward past the spray nozzle (col.6, lines 13-15) with a drive mechanism for displacing the container (col.6, lines 18-25). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method and apparatus of the Holbert reference by including a carton displacement means as taught by the Swain reference in order to insure that the entire carton is treated (col.6, lines 28-31).

With respect to claim 38, the Holbert reference teaches inserting UV lamp into a partially completed container, but fails to teach moving the partially completed container with respect to the radiation source; however, the Swain reference, which is in the art of treating substrates, teaches the concept of moving the substrate, i.e., moving the substrate upward and downward past the spray nozzle (col.6, lines 13-15) with a drive mechanism for displacing the container (col.6, lines 18-25). The combination of the above references result in a mechanism to advance both the container and the UV lamp simultaneously. Also, the combination of the above references result in the simultaneous transverse motion to the axis of the partially completed container while emission of radiation (figure 2:38 and 20) is performed. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method and apparatus of the Holbert reference by including a carton displacement means as taught by the Swain reference in order to insure that the entire carton is treated (col.6, lines 28-31).

Art Unit: 1744

18. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holbert (U.S.P.N. 5,730,934) in view of Swain et al (U.S.P.N. 5,419,058) as applied to claim 34 and further in view of Rodocker (U.S.P.N. 4,590,740).

With respect to claim 36, the Holbert reference discloses a mandrel (figure 6:20) that extends into the top open end of the partially completed container (figure 7:70) by driving arrangement means. Further, the Holbert reference teaches forming containers from packaging material (col.6, lines 26-40) that result in a tubular container opened at both ends. However, the Holbert reference and the Swain reference fail to teach closing the other end of the container while it remains on the mandrel. The Rodocker reference teaches sealing the other end while the container remains on the mandrel (figure 1:24, 26 and col.2, lines 36-39). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of the Holbert reference by including a mandrel assembly as taught by the Rodocker reference since such an assembly provides an improved means by sterilizing the interior surfaces of carton blanks prior to bottom formation step thereby substantially increasing the sterilizing time allotted to each carton (col.4, lines 10-16).

19. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holbert (U.S.P.N. 5,730,934) in view of Swain et al (U.S.P.N. 5,419,058) as applied to claim 39 and further in view of Leshik et al (U.S.P.N. 4,931,302).

With respect to claim 40, the Holbert reference discloses a mandrel (figure 6:20) that extends into the top open end of the partially completed container (figure 7:70) by driving arrangement means. The top of the sterilized container is

Art Unit: 1744

sealed at a closing arrangement disposed at a location along a transverse movement of the mandrel (figure 7:70 and the unlabeled subsequent filling and closing steps) after sterilization is achieved. The Holbert reference and the Swain reference fail to teach positioning a mandrel cap at an outer end of the rod-shaped source to enable bottom sealing the partially completed container; however, the Leshik reference, which is in the art of UV sterilization of cup-shaped plastic containers, teaches that such containers have flexible lids (col.4, lines 39-49). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of the Holbert reference by including cup-shaped plastic containers with a sealing lids as taught by the Leshik reference since such cups are used in the aseptic filling industry (col.4, lines 39-42).

20. Claims 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuckner et al (U.S.P.N. 5,350,568) in view of Rodocker (U.S.P.N. 4,590,740).

With respect to claims 25-26, the Tuckner reference inserts a mandrel (figure 3(a): 32 and 62) in the one opening of the partially completed container by using a drive arrangement (col.5, lines 30-34) and also discloses a subsequent closing arrangement after the sterilization step (col.4, lines 37-41) at a location along a path transverse to the movement of the mandrel for closing the opening of the container. The Tuckner reference further teaches the cartons are formed from blanks with two open ends (col.4, lines 14-17). Mandrel is conventionally defined as cylindrical axle inserted into a hole in a piece of work to support it

Art Unit: 1744

during treatment. The mandrel (figure 3(a): 32 and 62) of the Tuckner reference is capable of supporting the partially completed container by being inserted within it. However, the Tuckner reference fails to teach closing the other end of the container while it remains on the mandrel. The Rodocker reference teaches sealing the other end while the container remains on the mandrel (figure 1:24, 26 and col.2, lines 36-39). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method and the apparatus of the Tuckner reference by including a mandrel assembly as taught by the Rodocker reference since such an assembly provides an improved means by sterilizing the interior surfaces of carton blanks prior to bottom formation step thereby substantially increasing the sterilizing time allotted to each carton (col.4, lines 10-16).

21. Claims 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holbert (U.S.P.N. 5,730,934) in view of Rodocker (U.S.P.N. 4,590,740).

With respect to claims 27-28, the Holbert reference discloses a mandrel (figure 6:20) that extends into the top open end of the partially completed container (figure 7:70) by driving arrangement means and a subsequent closing means (col.4, lines 35-37). Further, the Holbert reference teaches forming containers from packaging material (col.6, lines 26-40) that result in a tubular container opened at both ends. However, the Holbert reference fails to teach closing the other end of the container while it remains on the mandrel. The Rodocker reference teaches sealing the other end while the container remains on the mandrel (figure 1:24, 26 and col.2, lines 36-39). Thus, it would have been

Art Unit: 1744

obvious to one having ordinary skill in the art at the time the invention was made to modify the method and apparatus of the Holbert reference by including a mandrel assembly as taught by the Rodocker reference since such an assembly provides an improved means by sterilizing the interior surfaces of carton blanks prior to bottom formation step thereby substantially increasing the sterilizing time allotted to each carton (col.4, lines 10-16).

22. Claims 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuckner et al (U.S.P.N. 5,350,568) in view of Swain et al (U.S.P.N. 5,419,058).

With respect to claims 29-30, the Tuckner reference teaches moving the spraying device within the container from an open end and continuously apply hydrogen peroxide to containers (col.9, lines 56-58). The Tuckner reference further teaches a first drive arrangement for causing the spraying device to move within a container (col.5, lines 30-35), but fails to teach simultaneously advancing the container and the device. The Swain reference, which is in the art of treating substrates, teaches the concept of moving the substrate, i.e., moving the substrate upward and downward past the spray nozzle (col.6, lines 13-15). The combination of the above references result in the simultaneous transverse motion to the axis of the partially completed container and a second drive arrangement for moving the device and the container simultaneously. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method and apparatus of the Tuckner

Art Unit: 1744

reference by including a carton displacement means as taught by the Swain reference in order to insure that the entire carton is treated (col.6, lines 28-31).

23. Claims 41-43 and 46-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuckner et al (U.S.P.N. 5,350,568) in view of Rodocker (U.S.P.N. 4,590,740) as applied to claims 25-26 and further in view of Swain et al (U.S.P.N. 5,419,058).

With respect to claims 41-43 and 46-47, the Tuckner reference teaches moving the spraying device within the container and continuously apply hydrogen peroxide to containers (col.9, lines 56-58). In addition, the Tuckner reference further teaches a drive arrangement for causing the spraying device to move within a container (col.5, lines 30-35), but both the Tuckner reference and the Rodocker reference fail to teach simultaneously advancing the container and the device. The Swain reference, which is in the art of treating substrates, teaches the concept of moving the substrate, i.e., moving the substrate upward and downward past the spray nozzle (col.6, lines 13-15). The combination of the above references result in the simultaneous transverse motion to the axis of the partially completed container and a second drive arrangement for moving the device and the container simultaneously. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of the Tuckner reference by including a carton displacement means as taught by the Swain reference in order to insure that the entire carton is treated (col.6, lines 28-31).

Art Unit: 1744

24. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tuckner et al (U.S.P.N. 5,350,568) in view of Rodocker (U.S.P.N. 4,590,740), Swain et al (U.S.P.N. 5,419,058) as applied to claim 43 and further in view of Palaniappan et al (U.S.P.N. 6,056,918).

With respect to claim 44, the Tuckner reference teaches continuously apply hydrogen peroxide to containers (col.9, lines 56-58) but fails to explicitly teach moving the container at a constant speed. The Rodocker reference and the Swain reference also both fail to teach moving the container at a constant speed. The specification on page 9, lines 1-4, teaches that a uniform layer of hydrogen peroxide solution is applied as the result of a constant speed motion between the container and the device. The Palaniappan reference teaches forming a uniform coverage layer of hydrogen peroxide (col.8, lines 48-51) on the surfaces of cartons. This result is achieved through a constant speed motion as taught by the specification. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of the Tuckner reference by including a constant speed motion between the sterilant source and the partially completed container since such a modification leads to an improvement in the sterilization capability of the system as taught by the Palaniappan reference (col.8, lines 52-54).

25. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tuckner et al (U.S.P.N. 5,350,568) in view of Rodocker (U.S.P.N. 4,590,740) as applied to claim 25 and further in view of Palaniappan et al (U.S.P.N. 6,120,730).

With respect to claim 45, the Tuckner reference teaches emitting hydrogen peroxide from the outer end of the device at 360 degrees around the axis of the container (figure 2:28 and the unlabeled hydrogen peroxide dispensing lines); however, the Tuckner reference and the Rodocker reference fail to teach emitting a sterilant perpendicular to the axis of the container. The Palaniappan reference teaches emitting hydrogen peroxide substantially perpendicular to the axis of the container (figure 5:63 and 260). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of the Tuckner reference by substituting the Holbert sprayer for the Palaniappan sprayer in order to be able to widely disperse the sterilant within the container as taught by the Palaniappan reference (col.6, lines 62-64).

Remarks

26. The amendment to figure 2 and to the specification submitted on 08/22/2005 have been accepted.

Response to Arguments

27. Applicant's arguments with respect to claims 1-47 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion


28. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MONZER R. CHORBAJI whose telephone number is (571) 272-1271. The examiner can normally be reached on M-F 6:30-3:00.

Art Unit: 1744

29. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JOHN KIM can be reached on (571) 272-1142. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

30. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Monzer R. Chorbaji
Patent Examiner
AU 1744
11/13/2005


JOHN KIM
SUPERVISORY PATENT EXAMINER